

tributary streams. There are elevational extremes in this region, from subalpine summits over 9000 feet, to canyon bottoms below 2000 ft. Topography is characterized by precipitous canyon walls along the rivers, steep upland slopes, and smaller tributary streams with cliffs, rocky slopes and mass-wasting features such as slumps and mud-rock flows. The soils of the region are especially prone to erosion and slippage. Slopes often exceed the angle of repose and periodic severe thunderstorms with intense rains will supersaturate the soil mantle. The resulting slumping and mud-rock flows often deposit materials into stream channels and can destroy streambanks.

The climatic conditions in these deep canyon bottoms are strikingly different from surrounding uplands and mountains. In the canyons, summers are hot and dry, and winters mild, with only limited and ephemeral snows. Precipitation is variable, but generally the higher elevation reaches have higher precipitation. Annual precipitation is approximately 13 inches at 740 feet, and about 18 inches at 2000 ft. However, a rain shadow effect occurs further to the east, in upstream reaches, and annual precipitation is less than 10 inches (Miller 1976).

This association occurs on riparian sites in canyon bottoms, from 900 to 2800 ft elevation along the Snake River and its tributaries. It is associated with very poor stream channel stability ratings, indicating it occupies sites frequently disturbed by flooding and deposition of mud-rock flow materials (Miller 1976).

#### MOST ABUNDANT SPECIES

<u>Strata</u>	<u>Species</u>
Tree Canopy	<i>Alnus rhombifolia</i>
Tall Shrub	<i>Philadelphus lewisii</i> , <i>Prunus virginiana</i> , <i>Betula occidentalis</i>
Herbaceous	<i>Epilobium ciliatum</i> , <i>Bolandra oreana</i> , <i>Dodecatheon jefferyi</i> , <i>Mimulus lewisii</i>

**VEGETATION DESCRIPTION** This forest association is dominated by broad-leaved, deciduous woody species. The tree *Alnus rhombifolia* dominates, with high cover. The shrub layer, also broad-leaved deciduous, is dominated by *Philadelphus lewisii*, from 1.5 to 2.5 meters tall. Several other shrub species are commonly present, including the taller *Crataegus douglasii*, and *Prunus virginiana*, and the shorter *Ribes irriguum*, and *Salix exigua*. Occasional colonies of the introduced shrub *Rubus discolor* can be found, as well as the native liana *Clematis ligusticifolia* and the introduced *Solanum dulcamara*. Canopy cover is high. The herbaceous component of this association is composed of species indicative of hydrologic disturbance. Little information is available on species composition (Miller 1976).

**WILDLIFE VALUES** No information.

**OTHER NOTEWORTHY SPECIES** The rare, deciduous shrub, *Rubus bartonianus*, was found in one stand of this association; it is endemic to Hells Canyon (Miller 1976). Another Hells Canyon endemic, *Camassia cusickii*, is also found in this community.

ADJACENT COMMUNITIES Upland communities are mostly canyon grasslands dominated by bluebunch wheatgrass and Idaho fescue. Occasionally at higher elevations, the Douglas-fir/ninebark association borders this community.

CONSERVATION RANK G2 S2

SUCCESSION AND MANAGEMENT Information not available.

CLASSIFICATION COMMENTS This community has not been described elsewhere and is likely to be endemic to the Hells Canyon area. Occurrences will probably be discovered on the Oregon side of the canyon.

EDITION 93-11-11

EDITION AUTHOR M. Reid

### ***BETULA OCCIDENTALIS/MESIC FORB***

COMMON NAME Water Birch/Mesic Forb

PHYSIOGNOMIC TYPE Shrub thicket

SIMILAR COMMUNITIES No information available.

RANGE Stands occur in Colorado, Nevada, Idaho and Utah.

SOILS Soils often had thick mollic epipedons and included Cumulic and Pachic Haploborolls, and Cumulic Haploxerolls (Manning and Padgett 1995).

ENVIRONMENTAL DESCRIPTION The *Betula occidentalis*/Mesic Forb community type occurs along terraces, seeps and intermittent channels. A majority of the soils are formed in alluvium, mottles were common within 20 inches of the soil surface indicating a seasonally high water table (Padgett *et al.* 1989).

### **MOST ABUNDANT SPECIES**

<u>Strata</u>	<u>Species</u>
Tall Shrub	<i>Betula occidentalis</i>
Herbaceous	<i>Heracleum lanatum</i> , <i>Geranium richardsonii</i> , <i>Equisetum arvense</i> , <i>Aconitum columbianum</i> , <i>Epilobium angustifolium</i> , <i>Smilacina stellata</i>

VEGETATION DESCRIPTION *Betula occidentalis* clearly dominates the tall shrub overstory with over 30-50% cover. The undergrowth is characterized by mixed forb cover with

*Heracleum lanatum*, *Geranium richardsonii*, *Equisetum arvense*, *Aconitum columbianum*, *Epilobium angustifolium*, *Smilacina stellata* and other forbs with over 100% cover in combination. A somewhat sparse low shrub layer is often present and may include *Rosa woodsii*, *Salix* spp., or *Cornus sericea*. Graminoids may be absent or *Carex microptera*, *Glyceria elata*, *Agrostis stolonifera*, and *Poa pratensis* may contribute a combined cover of up to 25%.

**WILDLIFE VALUES** *Betula occidentalis* communities frequently occur as stringers along streams which provide migration routes, hiding cover, and shade for both large and small mammals. Water birch is not an important browse species, but use will occur if other woody species are not available. The structure of stands provides important habitat for birds (Hansen *et al.* 1995).

**OTHER NOTEWORTHY SPECIES** Information not available.

**ADJACENT COMMUNITIES** In Nevada, adjacent upland communities include those dominated by *Abies concolor*, *Pinus ponderosa*, and *Pinus edulis*, with *Juniperus scopulorum* or *Juniperus osteosperma*. *Artemisia tridentata wyomingensis* dominate adjacent upland communities in Idaho. Adjacent riparian communities include those dominated by *Populus tremuloides*, *Rosa woodsii*, and/or various tall willows (Manning and Padgett 1992, Padgett *et al.* 1989).

**CONSERVATION RANK** G3 S1

**SUCCESSION AND MANAGEMENT** The presence of *Pinus ponderosa*, *Picea engelmannii*, and *Populus tremuloides*, among others, indicates a possible successional trend toward coniferous tree-dominated communities (Padgett *et al.* 1989). Manning and Padgett (1995), suggest the *Betula occidentalis*/Mesic forb community type may represent good ecological condition, particularly when species such as *Aconitum columbianum* or *Smilacina stellata* are undergrowth dominants. Through heavy grazing, however, the type may be replaced by the *Betula occidentalis*/*Poa pratensis* community type.

This community type is open and lacks a dense low shrub layer. Livestock are likely to use these communities for forage and shade. Early season grazing should be avoided to increase vigor of the dominant shrub. The coarse textured soils are generally erodible and livestock use should be managed to avoid streambank damage. Shoots of water birch are killed by fire, but plants will resprout from uninjured basal buds (Youngblood *et al.* 1985, Hansen *et al.* 1995).

**CLASSIFICATION COMMENTS** Classification based on 7 stands in Nevada, 5 stands in Utah and southeastern Idaho, and 10 stands in Colorado.

**EDITION** 1996-05-28

**EDITION AUTHOR** Linda Williams

## BETULA OCCIDENTALIS/POA PRATENSIS

COMMON NAME Water Birch/Kentucky Bluegrass

PHYSIOGNOMIC TYPE Shrub thicket

### SIMILAR COMMUNITIES

RANGE Stands are known from Nevada, Utah, and central and southern Idaho (Padgett *et al.* 1989; Manning and Padgett 1995; Mancuso 1997).

SOILS Soil development appears to be highly variable, though all were alluvial. Soils are classified as Aquaic and Mollic Xerofluvents, Cumulic Cryaquolls, and Aquaic and Cumulic Haploborolls. Most particle-size classes were coarse-textured and/or had more than 35 percent coarse fragments in at least the subsurface horizons. Estimated available water-holding capacity ranged from low to high. Depth to water table was usually below the depth of the soil pit, but was measured as high as seven inches below the surface.

ENVIRONMENTAL DESCRIPTION The community occupies stream terraces and occasionally seeps in narrow (rarely moderately wide) valley bottoms. Valley bottom gradient is typically low to moderate. Elevations of stands in Nevada, Utah and southeastern Idaho are 6,000 to 7,800 feet while a stand in southwestern Idaho occurred at 3,200 feet. Depth to water table is generally greater than the depth of the soil pit in sampled stands (Padgett *et al.* 1989; Manning and Padgett 1995).

### MOST ABUNDANT SPECIES

Strata	Species
Tall Shrub	<i>Betula occidentalis</i>
Herbaceous	<i>Poa pratensis</i> , <i>Achillea millefolium</i> , <i>Agrostis stolonifera</i>

VEGETATION DESCRIPTION *Betula occidentalis* dominates the tall shrub overstory with minor amounts of *Salix boothii*, *S. lasiolepis*, *S. bebbiana*, and/or *S. amygdaloides*. *Alnus incana*, when present, is clearly subordinant. *Juniperus scopulorum* may also be present. Shrubs are common and *Rosa woodsii*, *Ribes aureum*, *R. inerme*, and *Cornus stolonifera* among those most likely to occur. The open undergrowth is commonly dominated by native and non-native rhizomatous graminoids, especially *Poa pratensis*. Tall forbs are inconspicuous, while low-growing weedy species may have high cover (Padgett *et al.* 1989; Manning and Padgett 1995).

WILDLIFE VALUES *Betula occidentalis* communities frequently occur as stringers along streams which provide migration routes, hiding cover, and shade for both large and small

mammals. Water birch is not an important browse species, but use will occur if other woody species are not available. The structure of stands provides important habitat for birds (Hansen *et al.* 1995).

OTHER NOTEWORTHY SPECIES      Information not available.

ADJACENT COMMUNITIES      Adjacent uplands are typically dominated by pinyon-juniper communities in Nevada and Utah, although ponderosa pine and Gamble's oak can also occur on adjacent slopes in Utah (Padgett *et al.* 1989; Manning and Padgett 1995). In southwestern Idaho, adjacent slopes are *Artemisia tridentata vaseyana* associations.

#### CONSERVATION RANK

SUCCESSION AND MANAGEMENT      The *Betula occidentalis/Poa pratensis* community is likely a grazing induced seral stage of the *Betula occidentalis*/Mesic forb type. It differs from the mesic forb type in its lack of a dense forb layer. The undergrowth is open and dominated by species which indicate heavy past grazing, such as *Poa pratensis*, *Taraxacum officinale*, and/or *Achillea millefolium*. Otherwise, these two communities occupy similar sites (Padgett *et al.* 1989; Manning and Padgett 1995).

Because of the open structure of the community, livestock are more likely to graze and seek shade in this type than adjacent riparian types with dense understories. The result is a risk to streambank stability because of the effects of trampling. Structural diversity in this type is less than any of the other *Betula occidentalis* communities, although it is still capable of providing shade for adjacent stream channels (Padgett *et al.* 1989).

CLASSIFICATION COMMENTS      Classification based on 7 plots in Utah and southeastern Idaho (Padgett *et al.* 1989), 6 plots in central Nevada (Manning and Padgett 1995), and 1 plot in southwestern Idaho.

EDITION      97-12-31

EDITION AUTHOR      B. Moseley

### ***SALIX EXIGUA*/BARREN**

COMMON NAME      Sandbar Willow/Barren

PHYSIOGNOMIC TYPE      Shrub thicket

SIMILAR COMMUNITIES      Manning and Padgett (1995) described the *Salix exigua*/Bench community type from Nevada that is considered the same as the *Salix exigua*/Barren type of Padgett *et al.* (1989). Tuhy and Jensen (1982) described a similar type with no diagnostic

undergrowth for central Idaho. One or more of Cole's (1995) *Salix exigua* types may be included within the variation of this one.

**RANGE** Stands occur in Idaho (Jankovsky-Jones 1996; 1997a; 1997b; 1997c), Nevada (Manning and Padgett 1995), Utah (Padgett *et al.* 1989), and probably elsewhere.

**SOILS** Soils are highly variable, ranging from highly stable Cumulic Haplaquolls and Aquic Cryoborolls to early developmental Typic Udifluvents. All have developed on alluvium of varying ages. Estimated available water-holding capacity ranged from low to high, and particle-size classes include fine-loamy and sandy-skeletal. Water tables ranged from near the surface to over 3 feet below the surface (Padgett *et al.* 1989).

**ENVIRONMENTAL DESCRIPTION** This community type occurs along active streambanks or on nearby stream terraces. Flooding in this community is probably an annual event. The soils are young and fluvial in origin. It can occur in valley bottoms with very low to moderate gradients and can be from narrow to very wide. Elevations are mostly below 5,500 feet (Padgett *et al.* 1989; Manning and Padgett 1995).

#### **MOST ABUNDANT SPECIES**

Strata	Species
Tall Shrub	<i>Salix exigua</i>
Herbaceous	<i>Solanum dulcamara</i> , <i>Epilobium</i> spp.

**VEGETATION DESCRIPTION** A dense stand of *Salix exigua* dominates the overstory of this otherwise depauperate community. Other willows, such as *S. lasiandra*, *S. amygdaloides*, and *S. lutea*, may occasionally be minor components. *Rosa woodsii*, *Ribes inerme*, or *Cornus sericea* may be present in the shrub layer, but in very low cover. The undergrowth is open with predominantly bare ground, rock, or leaf litter and only scattered herbaceous species. Graminoids are generally absent (Manning and Padgett 1995).

**WILDLIFE VALUES** Stands of this community provide excellent thermal and hiding cover for a wide range of wildlife species. *Salix exigua* is normally not as heavily browsed as other willow species. Beavers tend to utilize *Salix exigua* (Hansen *et al.* 1995).

**OTHER NOTEWORTHY SPECIES** Information not available

**ADJACENT COMMUNITIES** A wide range of upland communities can occur on adjacent slopes, ranging from salt desert shrub and sagebrush-steppe communities at the lower elevations to low-montane coniferous woodlands and forests at the higher elevations.

**SUCCESSION AND MANAGEMENT** The *Salix exigua*/Barren type is an early successional type that has had little undergrowth development. Some stands have rather xeric

soils which inhibits the establishment of herbaceous species, while others are very wet, but have had insufficient time for establishment. Succession in this community without outside disturbance will likely lead toward the *Salix exigua*/Mesic forb or *S. exigua*/Mesic graminoid types in moist situations, while drier sites may develop into the *S. exigua*/*Poa pratensis* community (Padgett *et al.* 1989).

There is essentially no herbaceous livestock forage available in this type. The willows provide stability of streambanks as well as stream shading.

**CLASSIFICATION COMMENTS** Classification is based on 7 stands in Utah, 8 stands in Nevada (for the *Salix exigua*/Bench community), and several plots in Idaho.

**EDITION** 12-31-97

**EDITION AUTHOR** B. Moseley

### ***SALIX EXIGUA*/MESIC GRAMINOID**

**COMMON NAME** Sandbar Willow/Mesic Graminoid

**PHYSIOGNOMIC TYPE** Shrub thicket

**SIMILAR COMMUNITIES** Some Hansen *et al.* (1995) stands may fit in this type.

**RANGE** Stands occur throughout Utah and extreme western Colorado (Padgett *et al.* 1989) and throughout Idaho (Padgett *et al.* 1989; Jankovsky-Jones 1996; 1997a; 1997b; 1997c).

**SOILS** Water tables range from the surface to over three feet below the surface. Distinct and prominent mottles are common within 20 inches of the surface, indicating a seasonally high water table. Soils indicate a broad range of development, from the well-developed Terric Borohemists, Cumulic Haploborolls, Typic Cryaquolls, and Pachic Cryoborolls to less-developed Aquic Cryofluvents and Fluvaquentic Haploxerolls. Soils develop on alluvial depositions of varying ages. Particle-size classes were highly variable, with estimated available water-holding capacity from low to moderate (Padgett *et al.* 1989).

**ENVIRONMENTAL DESCRIPTION** This type occurs on stream terraces and in meadows associated with stream channels from about 2,000 to 7,700 feet. Valley bottoms may be narrow to very wide and of low to moderate gradient. This community is not in the most dynamic portion of the floodplain, as are some of the other *Salix exigua* types (Padgett *et al.* 1989).

## MOST ABUNDANT SPECIES

Strata	Species
Tall Shrub	<i>Salix exigua</i>
Herbaceous	<i>Eleocharis palustris</i> , <i>Carex nebraskensis</i> , <i>Carex lanuginosa</i> , <i>Carex sheldonii</i>

**VEGETATION DESCRIPTION** *Salix exigua* dominates the overstory of this type. *Salix lutea* and/or *S. lasiandra* may also be prominent in the overstory and in some instances may codominate. Other shrubs are typically minor components of this type. The undergrowth is characterized by moderate to dense cover of *Carex nebraskensis*, *C. lanuginosa*, *Juncus balticus*, *Eleocharis palustris*, *Agrostis stolonifera*, and, in one Idaho stand, *C. sheldonii*. Forb cover is typically sparse (Padgett *et al.* 1989).

**WILDLIFE VALUES** Stands of this community provide excellent thermal and hiding cover for a wide range of wildlife species. *Salix exigua* is normally not as heavily browsed as other willow species. Beavers tend to utilize *Salix exigua* heavily (Hansen *et al.* 1995).

**OTHER NOTEWORTHY SPECIES** Information not available

**ADJACENT COMMUNITIES** Because of the wide elevational gradient over which this type occurs, adjacent upland communities can range from sagebrush-steppe to coniferous forest associations.

**CONSERVATION RANK** G3? S3?

**SUCCESSION AND MANAGEMENT** In most situations the *Salix exigua*/Mesic graminoid community is considered an early successional type pioneering sand and gravel bars, but it may be persistent in certain instances. This type appears in general to be wetter than other *Salix exigua* types and the environment is likely to be more favorable to the establishment of rhizomatous graminoids (Padgett *et al.* 1989).

The rhizomatous graminoid cover in this community results in high soil-holding and streambank stabilization ability. Should the stands become drier and/or grazing levels increase, this type might be replaced by the *Salix exigua*/*Poa pratensis* or possibly the *S. exigua*/Barren community.

**CLASSIFICATION COMMENTS** Classification is based on 7 plots from Utah and adjacent southeastern Idaho and western Colorado (Padgett *et al.* 1989) and three plots from elsewhere in Idaho.

**EDITION** 12-31-97

**EDITION AUTHOR** B. Moseley